

***VULNERABILITY ASSESSMENT FOR MOZAMBIQUE  
1999/2000***

***An Analysis of the Current Vulnerability to Food and Nutritional  
Insecurity***

***Series 3, 1999***

**Inter-sectoral Vulnerability Assessment and Mapping Group  
MAP, MPF, MISAU, DPCCN, FEWS, PMA, FAO, MSF/CIS  
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## Glossary of terms and abbreviations

## **Executive Summary**

As for the past three years the current vulnerability assessment for Mozambique is a product of a joint effort by various government sectors, donor organisations and UN agencies within the context of food security policy framework, pointing to a multi-sector approach for analysis and intervention.

The framework of analysis adopted in the current vulnerability analysis considers that, vulnerability to food insecurity and nutritional insecurity comprises two components: the risk of an event occurring and the coping ability of the households to deal with the event.

The methodology is based on the examination of the main crop season, assessing the district level of food self-provision. Districts are then categorized into four groups, according to self-provisioning capacity; districts with less than six month, districts with six to nine months, districts with nine to twelve months and districts with above twelve months of self-provisioning capacity.

Based on the 1998/99 food production nine districts were classified within the category of very poor food production capacity for the current (1999/2000) marketing year (less than six months), thirteen districts within the category of poor production capacity (six to nine months), twenty districts within the category of self-sufficient food production (nine to twelve months) and 68% of districts with surplus production (more than twelve months of self-provisioning capacity).

## I. Introduction

This is the third update of an analysis of vulnerability for Mozambique produced by a multi-sectoral group, which has been established with the view to understanding food security and nutrition issues with multidisciplinary focus. The results of the previous vulnerability analysis have been used in various contexts, and within WFP the findings have been used to informing programming decision and helped formulation of WFP's Food Fund Programme. As has been established, the objectives of the 1999/2000 VA report are the following:

- Identify areas and population groups most vulnerable to food insecurity and specific nutritional problems;
- Establish links between the assessment of vulnerability, formulation of policies and intervention plans;
- Promote an inter-sectoral debate on vulnerability in Mozambique, its causes, and identify interventions in order to alleviate chronic and transitory food insecurity; and
- Guarantee capacity within Mozambican institutions to regularly update vulnerability assessment.

Food security in Mozambique continues to be influenced by seasonal factors such as climatic conditions (drought, floods). Many households continue to be exposed to multiple seasonal risks as well as underlying structural factors.

Vulnerability to food and nutritional insecurity comprises two components: the **risk** of an event occurring (e.g. drought, cyclone, floods and pest outbreaks) and the **coping ability** of households to deal with that event (such as income, asset ownership and other sources). An assessment of risk and coping ability should encompass a time frame both for the short and medium-term. Levels of income and assets (**Domestic resource capacity**<sup>1</sup>) are important in assuring food security of the population in the short-term along with availability and accessibility to health, nutrition and education services in the medium and long-term. In Summary:

***Vulnerability is a function of risk of a specific event and a household's ability to cope in the short term. Coping ability is a function of domestic resource capacity and structural factors, which change over time.***

This study mainly focuses on current vulnerability, while chronic vulnerability issues are discussed when necessary. Current vulnerability results from the shocks that have affected the 1998/99 season impacting upon food access conditions and household consumption for 1999/2000 marketing year.

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<sup>1</sup> **Domestic resource capacity** is defined as the abilities of communities and households either collectively or individually to allocate resources to mitigate a threatening disaster risk. Additionally, responses such as selective disposal of assets, seasonal migration, diversification of economic base should be assessed in terms of decision that involves liquidation of productive assets without mortgaging their future.

## **1. Specific Objectives of the Assessment of Vulnerability**

As noted in the previous section, the Vulnerability Assessment (VA) aims to identify areas and population groups vulnerable to food insecurity, specific nutrition problems. Specifically, the VA aims to:

- **Assess the physical and socio-economic conditions that may influence the production of staple foods**, including discussions on the major food systems, risk events, economic factors, as well as nutritional and health conditions as a background to the analysis of vulnerability (VA).
- **Define food availability and food access<sup>2</sup> conditions at district level** in Mozambique for the 1999/2000 marketing year. This availability will be compared to the minimum needs to verify whether there will be a production deficit in a particular district during the marketing year. This will help to compare the food access at a district level against a standard requirement and determine whether there are population groups at district level which do not meet minimum food requirements.
- **Assess domestic resource capacity and coping strategies** where different sources of income are discussed in order to provide a context for the management of the food production deficit at district level.
- **Provide an objective basis and context for measuring and understanding of the impact of potential shocks** (floods and drought) to food access conditions in the country, especially in the near future.
- **Provide a basis for prioritising where to focus food security monitoring** during 1999/2000 to more accurately detect the incipient food supply and food access problems.

## **2. Methodology for Vulnerability Analysis**

In order to achieve the objectives, the methodologies used is based on assessment and analysis of basic crop data with an indication of the self-provisioning capacity indicated by the number of months of self-provision at the threshold of 1700 kcal/day per person (equivalent to 170 kg of cereal equivalent per person per year).

a) Four groups are identified:

- Very Poor: those with self-provision below six months
- Poor: those with self-provision between six to nine months
- Self-sufficient: those producing between nine to twelve months
- Surplus: those producing for more than 12 months

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<sup>2</sup> Current food access is defined as the ability of district level population to acquire food through own production, purchase, and transfer (gifts, relief, etc.) for the marketing year. All of these elements will be expressed in kilo calories-equivalent income, which will facilitate a summing of the sources of access, and allow year by year comparison over time.

- b) Other domestic resources (as animal production, fisheries, other sources of income, and coping strategies) of district with very poor and poor self-provisioning capacity are qualitative and quantitatively assessed.
- c) Identification of main problems of food deficit districts through a combination of approaches, including an analysis of the quantitative and qualitative data available, monitoring through “remote sensing” data, reports of field visits, local reports, and results from formal and informal meetings. Factors affecting food deficit districts are examined after quantitative verification of current food availability. These include natural risk factors (floods, rains, pests), market functioning, among others. The functioning of the market is verified qualitatively by spot checks of supply and demand, as well as physical access to the district and the opportunities for non-agricultural incomes.
- d) Field-verification visits were made to some districts in order to verify the different factors and reconfirm the data, as well as to obtain a better understanding of relevant events and/or conditions at the time of writing this report.
- e) Classification of the districts according to the level of vulnerability to food insecurity. Results of the above steps are put together to assess, both in quantitative and qualitative terms, which districts could offset risks of production shortfall through partial utilisation of various domestic resources (livestock, fishery and other forms of income). At this stage income derived from livestock, fishery, remittance and petty trading present a challenge of measurement, i.e. how many animals and at what time in the year would a household decides to liquidate the resource, and how much grain would it command. The VA group adopted a qualitative assessment that where these resources exist food security conditions can ameliorate, minimising the level of vulnerability during the marketing year. Based on these considerations, districts are classified according to their level of vulnerability to food insecurity as follows:
  1. **Extremely vulnerable** – households exhibit severe food shortage and could risk loss/ liquidation of their productive assets unless they receive external assistance;
  2. **Highly vulnerable** – households may not meet their food needs during the current year without reducing their level of consumption or reduce activities up to the extent of compromising their future food security.
  3. **Moderately vulnerable** – households can only achieve food security in the current year by reducing their savings or by using secondary sources of income. Should access to market or secondary livelihood activities be compromised, the households may become highly vulnerable to food insecurity in the current year.
  4. **Non vulnerable** – households can meet their food needs in this marketing year without altering their normal income generating activities and without reducing their savings.

### 3. *Unit of Analysis*

This report contains an analysis of vulnerability at district level. This level of desegregation was chosen in order to provide operationally useful results.

#### **4. *Data sources and limitations (see annex on methodology)***

## II. Analysis and Results

### 1. Assessment of Risks: Conditions for Food Production

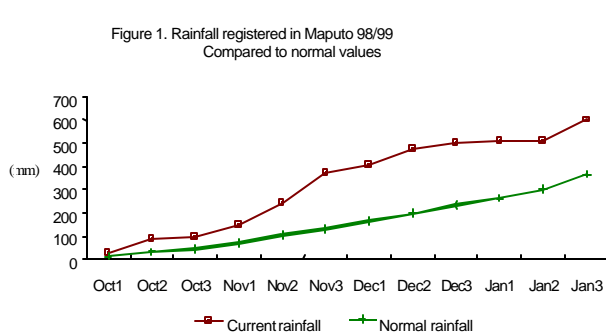
This section discusses conditions which prevailed during the 1998/99 season in order to assess food access conditions for 1999/2000 with the view to provide medium and long-term policy context for intervention. The main issues discussed in this section include seasonal rain distribution and flood risk. Other factors are discussed in the following sections.

#### a. Meteorological Conditions of the 1998/99 agricultural season

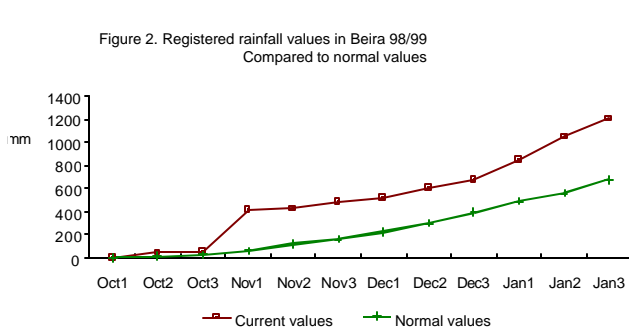
The 1998/99 agricultural season rainfall distribution corroborates with the INAM/ SADC forecast of an above normal rainfall for the southern and central regions and a late start with average to below average rainfall for the northern region of the country.

Indeed, an above normal rainfall was recorded for the southern region that provided favourable conditions for plant growth and development. This region receives less than 400 mm in normal years. However, as Figure 1 shows (obtained from INAM) well above average rainfall was

recorded for Maputo station.

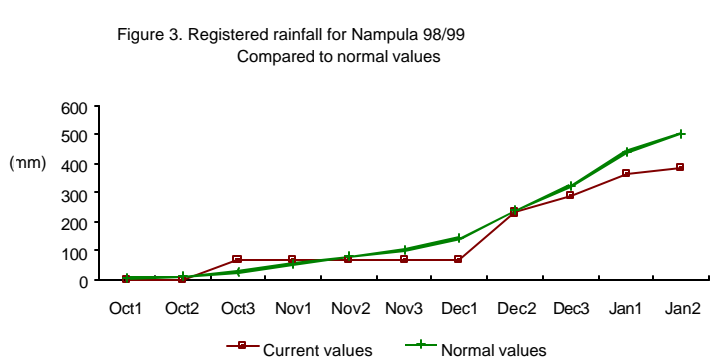


In the Central Region, above normal rainfall was registered as shown in Figure 2 (Beira). The excessive rains in the central region induced a substantial flood damage to crops and property as discussed in the next section. It should also be noted that an unusually high rainfall continued to be received in June and July 1999, which will contribute to favourable second crop.



On the other hand, as the Figure 3 indicates (Nampula), below normal rainfall was recorded for the northern region, but was sufficient for plant growth and development during the season.

It is estimated that second season crop accounts for 10 to 25% of the



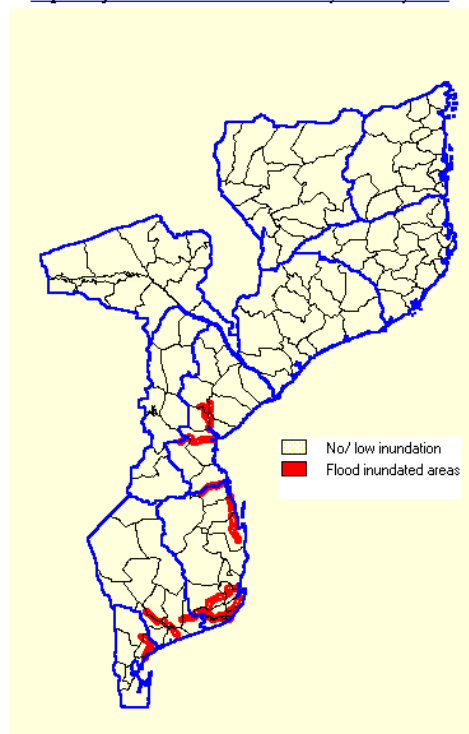


total household food stocks, particularly in Gaza and southern Inhambane and Maputo provinces.

## b. Flood Affected Areas During 1998/99 Season

Flood continues to be a major risk along the major rivers in Mozambique, and poses seasonal challenge to the livelihood of population living within these basins. As indicated in the previous assessments, the central and southern Mozambique experienced four consecutive years of flood damage: 1995/96 through to 1998/99. Flood occurrence has been reported in late December 1998 and early January/ February 1999 with a significant damage to crop fields, livestock and household properties (see Map 1). In addition to flood induced flood, it was noted that a significant crop loss and physical damages were reported from surface flood, which is not captured by flood risk model presented in Map 1. As a result of these floods, the Government of Mozambique and WFP launched an emergency appeal to assist the affected population early in 1999.

Map 1: Major Flood Affected Areas: January/ February 1999



During 1998/99, flood damages were due to Pungue, Buzi, Limpopo, Save, Inhassune, Govuro and Inharrime rivers. Pungue, Buzi, Limpopo and Save rivers historically cause significant loss in most years. Although the damages due to Inhassune, Govuro and Inharrime rivers are less common, it is these rivers that have induced substantial crop and property losses for districts in Inhambane province.

While many districts have reported flood occurrence, the following districts actually experienced economic and property losses. Table 1 presents list of districts that have experienced flood with corresponding estimate of areas affected. Note that estimated area is not necessarily the area of farmland affected by flood, it is simply the general area (including farm and non-farmland) that may have been flooded. Also, it should be noted that these model-generated figures provide indication of areas affected by river flood and do not provide an understanding of effects due to surface flood.

TABLE 1: DISTRICTS AFFECTED BY THE 1998/99 FLOOD OCCURRENCE

Districts	Calculated Flood Area (hectares)	Observations/ Impacts
Sussundenga	395	No major impact on agricultural land
Buzi	2,354	Negative impact on the first crop season
Chibabava	570	No major impact on agricultural land
Dondo	587	No major impact on agricultural land
Gorongosa	825	No major impact on agricultural land

Nhamatanda	1,248	No major impact on agricultural land
Machanga	1,009	No major impact on agricultural land
Muanza	503	No major impact on agricultural land
Govuro	1,284	Negative impact on the 1 <sup>st</sup> crop & positive impact on the 2 <sup>nd</sup> crop
Homoine	1,351	No major impact on agricultural land
Jangamo	1,048	No major impact on agricultural land
Inharrime	2,431	No major impact on agricultural land
Morrumbene	371	No major impact on agricultural land
Panda	2,091	No major impact on agricultural land
Zavala	1,133	No major impact on agricultural land
Xai-Xai	844	No major impact on agricultural land
Chibuto	887	No major impact on agricultural land
Chokwe	1,273	No major impact on agricultural land
Guija	663	No major impact on agricultural land
Mandlakazi	1,045	No major impact on agricultural land
Magude	384	No major impact on agricultural land
Manhica	1,547	Negative impact on the 1 <sup>st</sup> crop & positive impact on the 2 <sup>nd</sup> crop & vegetables.
Marracuene	330	No major impact on agricultural land
Vilankulo	2,388	Significant crop land and property loss
Bilene - Macia	121	Loss to crop land
Inhassoro	1,369	Significant crop land and property loss

**Source: VA group Analysis based on flood risk model, elevation data and field observations**

In addition to the above, a field verification visit was made to Inhambane province. According to the authorities the flood significantly affected five districts during the season as shown in the following table.

**TABLE 2: COMPARISON OF FLOOD AFFECTED AREAS IN INHAMBANE PROVINCE**

Districts	Estimates of Flood Affected Areas			Estimates of affected population
	District authorities	Flood model	Observations	
Inhassoro	8,000	1,369	The difference between district authorities and the model estimate is due to inclusion of surface flood by provincial/ district authorities. The computer generated flood model estimates flood areas due to river flooding.	22,046
Vilanculos	5,680	2,388		18,811
Govuro	1,359	1,284		9,915
Mabote	1,500	None		7,426
Massinga	570	None		9,095

**Source: Inhambane Province DPCCN/ DDA**

Flood occurrence has had several economic and social consequences as noted during the field verification visit<sup>3</sup>. The following observations were made about flood affected districts of Inhambane province.

<sup>3</sup> Field verification visits to selected districts in Gaza and Inhambane provinces were made in July 1999. Supplementary information were obtained for Vilanculo, Inhassoro, Govuro, Inharrime, Maxixe, Morrumbene, Massinga, Bilene Macia, Xai-Xai, Manjacaze Manhica, Marracuene, Chicualacuala, Mabalane, Maasangena, Massangir and Chigubo.

## **Inhassoro District**

1. According to provincial and district authorities, Inhassoro is the most affected by flood. The floods in the district were partly due to surface flooding and partly due to Govuro river flood.
2. Western side of the national highway was the most affected by surface flooding and damaged crops, which is the main source of livelihoods. Fishery income in these areas is very limited or non-existent.
3. Flood affected several economic activities --- the national highway was disrupted at several places; town and villages were flooded along the national highway, several houses were washed away with increased landslide activities. Surprisingly, several fields are still filled with stagnating water, and many houses are still under water at the time of the field visit. It is reported that this is very unusual at this time of the year. The present level of water combined with approaching rain season represents a major threat to the area. Due to persistent stagnant water many households remain dislocated from their original village.
4. On the other hand, the stagnating water is currently used for fishing, and fishing has become an import source of income for many households in the area. It is noted that price of fish has decreased due to increased supply of fish on the market.
5. Livestock, particularly small ruminants, is important source of income for population in this and other districts;
6. Despite continued stagnant water and substantial disruption to economic activities, there was no noticeable nutritional or physiological problem among children.

## **Govuro District**

1. The major inundation is from Save and Govuro rivers, principally within one km of the embankment of the rivers which are important agricultural land. Also, the rivers overflowed in areas of low embankment and flooded large tracts of land further inland. Nevertheless, there was no stagnant water as was the case in Inhassoro district.
2. Areas affected by flood enjoy a very good second crop; and this has not been the case in the past. The team noted that maize, sorghum, rice and sweet potato were widely planted for second season; most crops are at advanced growth stages while rice is near harvest stage.
3. The EN 211 (a junction from EN1 to Nova Mambone (Govuro HQs) is heavily eroded mainly due to heavy rains as well as lack of maintenance. The link between Liwido and Jofane, the two important trading localities, were disrupted due to the flood, and this affects trading capacity of the district;
4. The district also has sizeable livestock (particularly small ruminant) resources. Prices of animals (goats) are low which compares favourably to other areas of high concentration of animals. Fishing is another important resource for the district. There is also a fish export enterprise located at Govuro village that offers fish catch contract to local fishermen. This district uses animal traction for cultivation and transporting goods.
5. Land preparation for the next season is visibly underway by making good use of soil moisture.
6. The DDA reports increased animal mortality due to water borne diseases; sufficient control measures were not available, according to the discussion.

7. Condition of children was normal, no sign of physiological/ nutritional problem.

## **Vilanculo District**

1. Flood was due to Govuro river as well as surface flood along the national highway causing crop and property damage as well as increased soil erosion. According to district officials, 20% of crop fields were lost. Furthermore, it is reported that 11 people died; 712 goats, 26 cows and 50 pigs were drawn. Additionally, 6 flour mills, 15 schoolrooms and 250 storage bins destroyed while 1,199 houses were inundated.
2. The bridge on river Chikane (on the way to the airport) was cut off; a bridge on river Govuro at the junction of Pambarra was also cut off; several sections of roads on the national highway were cut off;
3. Malaria/ diarrhoea cases have significantly increased due to stagnating water in many places. According to the report, 3,602 cases of malaria were reported during the first semester of the current year compared to 63 cases of the same period last year.
4. Fish continues to be an important source of income in the district. However, it is reported that fish catch decreased at the time of flood. In general it is noted that fish catch increases from October to March while fish catch tends to decrease from April to August.
5. Condition of children was normal, no sign of physiological/ nutritional problem.

As will be discussed in the following sections, flooded areas in each district will be overlaid with district food self provisioning capacity to indicate potential reduction in the reported capacity thereof.

## **2. Assessment of Food Access**

### **a. National and Provincial Trends in Food Availability**

Mozambique registered yet another good production in 1998/9, this being the six consecutive years in which production has steadily increased owing to favourable climatic conditions (see Map 2). Distribution of rainfall was judged normal (regularly distributed in most of the country), there were no serious pest infestations, and also there were no serious health problems. Crop damages due to floods were reported along the Pungue, Buzi, Limpopo and Incomati rivers with damages ranging from minimal to serious (see the above section).

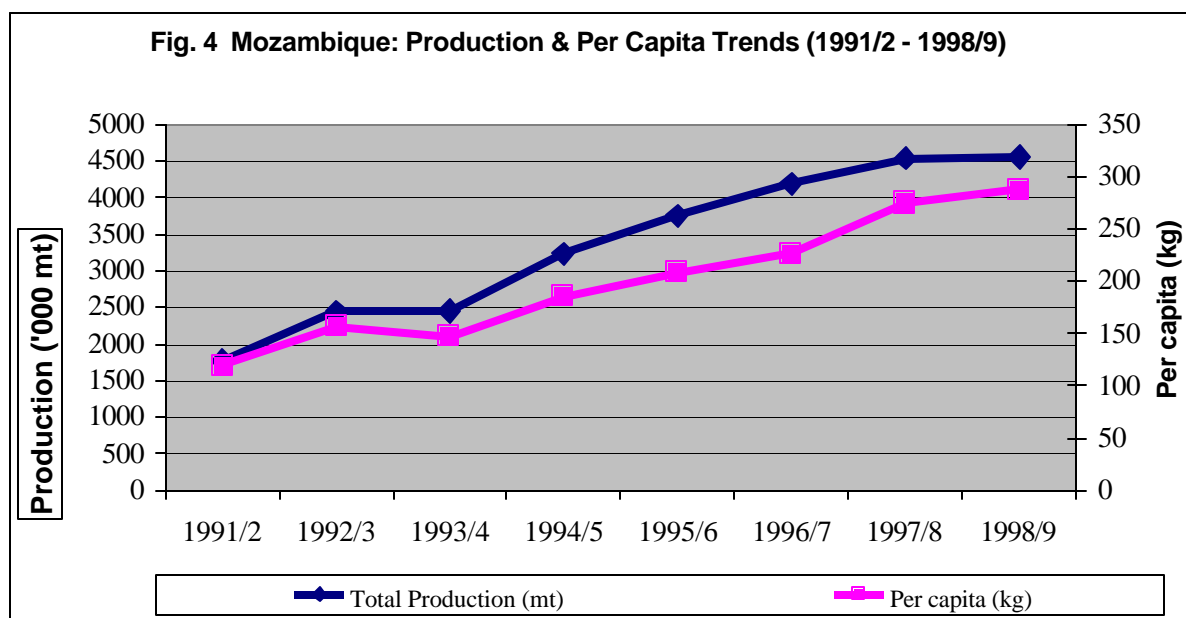
Production trends have continued to steadily increase since 1991/92. As noted in the previous reports, data quality, duration covered by the data and changes in population figures have limited any serious attempt to carry out neither national nor regional production trend analysis. While both aggregate and per capita production outlook are on the rise, they do not necessarily depict the underlying trends nor full scale realisation of the sector's potentials.

As Table 3 shows there has not been a substantial increase in production between 1997/98 and 1998/99 due to the introduction of the census population, which was lower than the projected population figures used in the previous years. Despite a substantial change in population figures, the 1998/99 production was slightly higher than the 1997/8 (see Figure 4). It is expected that the country can increase its maize export potential (150,000 mt) to neighbouring countries (see Annex 1).

TABLE 3: COMPARISON OF PRODUCTION (CEREALS, PULSES AND CASSAVA) 1991/92 - 1998/9 IN, METRIC TONNES

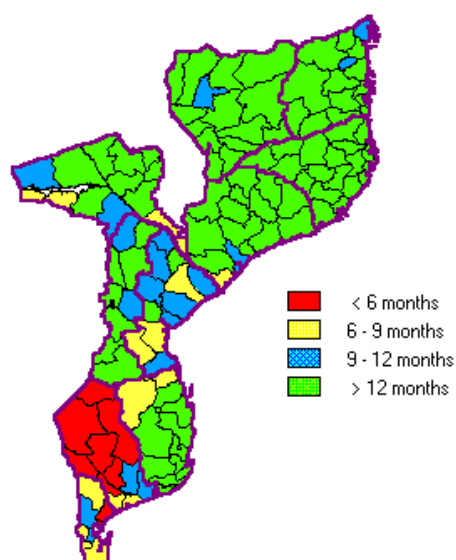
Province	1991/2	1992/3	1993/4	1994/5	1995/6	1996/7	1997/8	1998/9
CABO DELGADO	203,158	308,676	337,514	431,205	437,731.7	457,706	528,303	493,816
NIASSA	92,102	163,308	145,304	230,624	263,152.6	291,224	289,411	242,483
NAMPULA	1,021,541	967,855	836,970	1,121,363	1,297,915.6	1,445,180	1,499,007	1,497,028
ZAMBEZIA	296,977	433,832	536,706	774,495	843,599.5	946,636	1,072,734	1,024,940
TETE	15,973	120,967	74,363	61,082	130,953.6	177,486	196,832	275,337
MANICA	4,739	110,437	123,038	98,077	185,010.1	192,803	191,189	295,149
SOFALA	15,715	74,416	121,598	148,710	166,295.8	165,701	200,793	211,380
INHAMBANE	71,904	147,111	179,826	237,608	291,242.9	279,411	304,403	319,223
GAZA	36,481	72,672	80,953	84,308	97,758.4	171,385	197,587	137,223
MAPUTO	7,411	41,129	17,836	42,293	39,557.0	68,652	62,297	62,032
National	1,766,001	2,440,403	2,454,108	3,229,765	3,753,217.2	4,196,183	4,542,556	4,558,613
% change from 1991/2		38.2	39.0	82.9	112.5	137.6	157.2	158.1

Source: Based on production estimates by Ministry of Agriculture and Fisheries (1999)

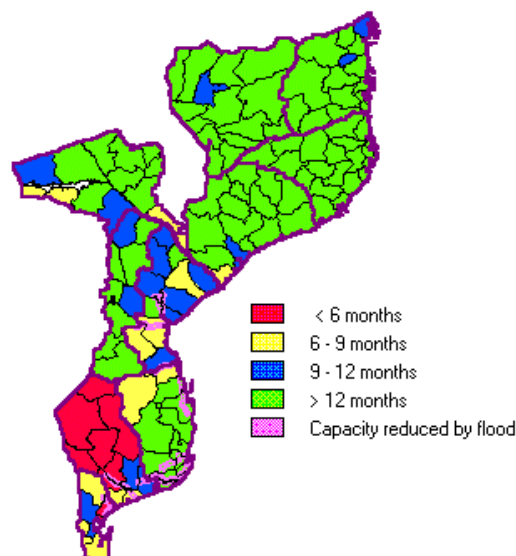


While national production continues to rise, this does not necessarily and directly translates to equally rising food access by all households. Firstly, the improvements in household food availability are constrained by distribution problems due to poor road access. Secondly, positive confidence and favourable climatic conditions on part of the producers may have not been matched with agricultural sector technology such as provisions of improved seeds, pesticides, fertiliser and improved marketing outlets.

Map 2: Number of Months of Food Self-provisioning (1999/2000)



Map 3: Flood area interaction with self-provisioning capacity



## b. District Level Staple Food Production

As was established in the past, a minimum threshold of 1,700 kcal is used during the 1999/2000 vulnerability analysis. Districts are categorised into four on the basis of their capacity for self-provisioning expressed in number of months (see Table 4).

TABLE 4: NUMBER AND PERCENTAGE DISTRIBUTION OF DISTRICTS BY THEIR SELF-PROVISION CAPACITY

Categories	No. of months of self-provisioning		Status of food access
< 6 months	9	( 7.0%)	Very Poor
6 - 9 months	13	(10.1%)	Poor
9 - 12 months	19	(14.7%)	Self Sufficient
≥ 12 months	88	(68.2%)	Surplus

All districts have been categorised based on the above classification and mapped out (see Map 2). Also, the four categories of food self-provisioning were overlaid with areas affected by flood to show where production capacity may have been further reduced (Map 3).

**(i) Districts with a very poor production (less than 6 months)**

Nine districts fell into the category of very poor food capacity for food self-provisioning. Historically, these districts are located in dry and semi-arid areas and are characterised by chronically very poor staple food production. These districts are periodically affected by flood or inadequate rainfall or both (see Table 5). These districts rely on livestock resources as will be discussed in the following sections.

As be noted from the above table, food production conditions and the corresponding capacity changes over the three years of comparison. The conditions in Chicualacuala and Guija districts suggest a worsening capacity for food self-provisioning during 1999/2000 as compared to the previous years (both districts are livestock-dependent).

**Table 5: Districts with very poor production of staple foods**

No	District	No. of Months of self-provisioning			Three years comparison of status
		1997/98	1998/99	1999/2000	
1	Chokwe	1.90	1.86	3.06	Slight improvements
2	Chicualacuala	4.53	4.58	3.28	Worsening
3	Marracuene	5.06	3.46	4.00	Slight improvements
4	Mabalane	4.01	3.83	4.09	Slight improvements
5	Chigubo	4.21	2.40	4.17	Slight improvements
6	Guija	5.99	5.62	4.23	Worsening
7	Massangena	3.41	3.17	4.23	Slight improvements
8	Manhica	6.00	4.04	4.42	Slight change
9	Massangir	3.85	5.56	5.57	Slight improvements

**(ii) Districts with poor production (6 to 9 months)**

Thirteen districts fall into this category and they are located partly in dry/semi-arid food systems, in coastal areas and river basins and historically also represent high-risk and low production zones (see Table 6).

Most districts improved their food access conditions while Bilene-Macia and Xai-Xai slightly fallen below previous years' performance. Effects of flood reported in the previous section explain the reduction in capacity for self-provisioning in these districts.

**Table 6: Districts with poor staple food production**

No	District	No. of Months of self-provisioning			Three years comparison of status
		1997/98	1998/99	1999/2000	
1	Namaacha	6.80	5.63	6.03	Unchanged
2	Mutarara	2.13	4.62	6.48	Slight improvement
3	Govuro	5.52	5.02	6.50	Slight improvement
4	Mabote	4.68	5.59	6.72	Slight improvement
5	Bilene-Macia	7.43	8.73	6.73	Slight reduction
6	Xai-Xai	4.09	9.68	7.00	Slight reduction
7	Cheringoma	5.74	7.13	7.33	Slight improvement
8	Magude	7.45	6.56	7.85	Slight improvement
9	Chinde	6.27	6.76	8.01	Slight improvement
10	Buzi	6.72	5.31	8.31	Slight improvement
11	Chibabava	6.38	7.54	8.58	Slight improvement
12	Matutuine	6.51	6.62	8.76	Slight improvement
13	Magoie	3.89	8.75	8.86	Slight improvement

### (iii) Districts with self-sufficient production (9 to 12 months)

Twenty districts fall into the category of 9 to 12 months capacity for self-provisioning and they are located in coastal and river basin food systems. Most districts in this category improved their capacity for food self-provisioning over the three years of comparison. However, the districts of Muemba and Guro exhibited slight reduction in their capacity for food self-provisioning (see Table 7).

**Table 7: Districts with self-sufficient staple food production**

No	District	No. of Months of self-provisioning			Three years comparison of status
		1997/98	1998/99	1999/2000	
1	Changara	5.76	6.49	9.14	Slight improvements
1	Zumbu	9.03	9.67	9.62	Slight improvements
2	Moamba	5.43	6.06	9.65	Consistent improvements
3	Muanza	6.29	8.87	9.97	Consistent improvements
4	Gorongosa	7.68	8.17	10.26	Consistent improvements
5	Muidumbe	9.95	12.24	10.33	Slight reduction
6	Inhassunge	9.50	10.07	10.35	No major changes
7	Palma	10.23	11.77	10.37	No major changes
8	Marromeu	6.75	8.51	10.53	Slight improvements
9	Nicoadala	9.12	10.11	10.56	Slight improvements
10	Machanga	8.20	10.40	10.75	Slight improvements
11	Boane	3.93	8.35	10.91	Slight improvements
12	Mandlakazi	9.59	11.03	10.92	Slight reduction
13	Maringue	5.92	8.50	10.98	Considerable improvements
14	Chemba	4.00	5.37	11.38	Considerable improvements
15	Muembe	14.62	14.98	11.44	Slight reduction
16	Guro	20.40	11.60	11.45	Slight reduction
17	Gondola	15.36	7.29	11.54	No major change
18	Dondo	11.51	8.98	11.81	No major change
19	Chibuto	7.07	9.57	11.96	Considerable improvements

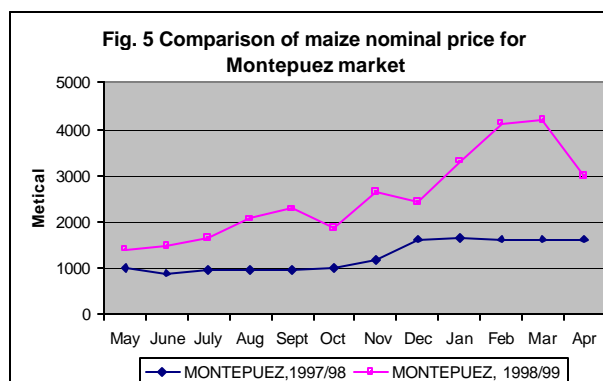
### (iv) Districts with surplus production (more than 12 months)

The majority (68%) districts fall in the category of surplus production, in relative terms, and are mostly located in the planalto (high-potential and low-risk zone) of the country (see Map 2).

## 3. Changes in Prices and Access to Market

The VA group selected four markets of Mozambique, namely Montepuez from the north, Manica from central, Chokwe and Maputo from the southern region in order to understand impacts of price change for producers and consumers. Maize (white) is selected for analysis for the period 1997/98 and 1998/99, over a period of two years.

Maize price for Montepuez market from May 1998 to April 1999 from the northern region remained consistently higher than the price of maize during the same period for 1997/98 season (see Fig. 5). The prices sharply rose from December 1998 to March 1999 (more than twice the previous year's price) and dropped in April 1999 due to the new harvest, although still remained well above the previous year's price. The sharp price rise for 1998/99 compared to 1997/98

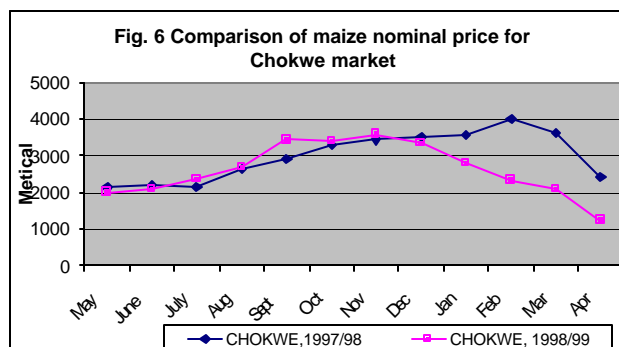




maybe due to increased maize demand across the border trade in Tanzania and other districts of Cabo Delgado. ??????????

Maize price for Chokwe market, the southern region food deficit district, remained within normal range of fluctuation for the period of comparison between 1997/98 and 1998/99 (see Fig. 6). As can be noted from Figure 6, price of maize sharply dropped from December 1998 to April 1999 owing to favourable crop production and hence improved food supply to the market.

Indeed price of maize fell by more than 40% between December and April compared to the previous year's price level. This is favourable for market-dependent populations as it likely improve their market food access.



Similar to the Chokwe market, Manica market depicts normal price fluctuations for the two years of comparison (see Fig. 7). Price of maize sharply fell November/December 1998 through to April 1999. This is due to favourable crop production and improved food supply to the market. Price of maize fell by more than 40% between December and April compared to the previous year's price level. This is favourable for market-dependent populations as it likely improve their market food access.

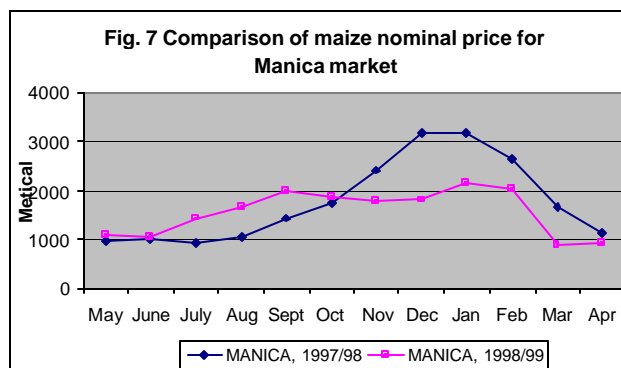
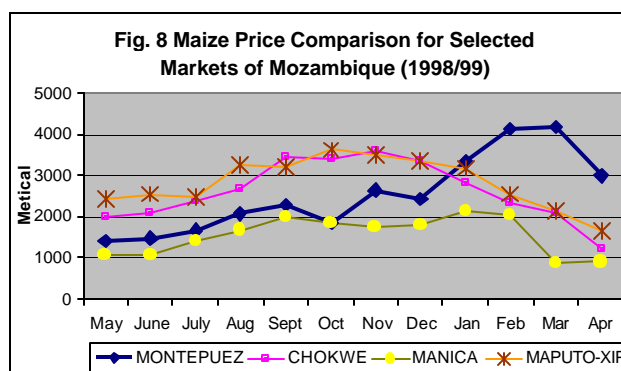


Figure 8 presents comparison of 1998/99 maize price for four markets in Mozambique: Montepuez, Chokwe, Manica and Maputo towns. As would be expected, prices of maize for Manica and Montepuez tend to be much lower than prices of maize in Chokwe (a food deficit district) and maputo (an urban consumer centre). While Montepuez's sharp price increase between October 1998 and April 1999 is very unusual, in general prices of maize in the surplus producing areas tend to be much lower than the food deficit districts of the southern region.



For all the markets included in this analysis for the period of two years, the 1998/99 maize price remained consistently higher than price of maize for 1997/98. This suggests that urban households are under relatively more pressures to maintain an adequate level of consumption compared to the previous year. In rural areas, the producers benefited from a relatively high level of prices during 1998/99.

## 4. Domestic Resource Capacity

### a. Livestock production & its food security implications

1998/99 agricultural season was favourable to livestock production<sup>4</sup>. Although livestock data has not been updated, there are indications of a normal production of animals during the period under review. Pasture is abundant in most districts of Mozambique resulting from a normal to above normal rains. Most districts of the central region are reported to have regained livestock numbers to the pre-war level, especially for small ruminants (see Map 4, Tables 8 and 9).

Map 4: Areas of High Cattle Concentration (1999)

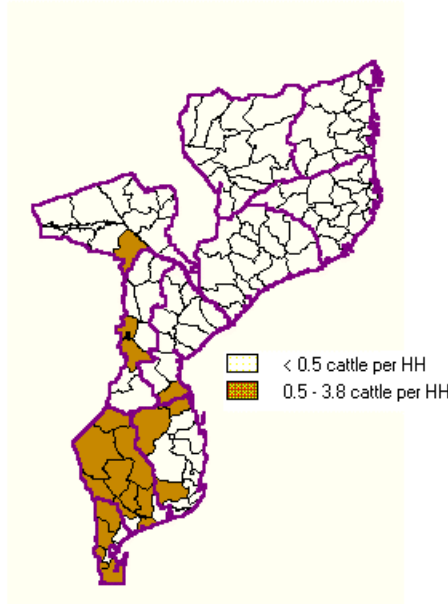


Table 8: Districts with High Concentration of Livestock

Province	Districts	Total Animal	Per capita
Inhambane	Panda	4937	0.51
Maputo	Matutuine	2677	0.51
Manica	Susundonga	9246	0.53
Sofala	Machanga	4475	0.56
Gaza	Chigubo	1144	0.60
Manica	Manica	18924	0.64
Gaza	Chibuto	17374	0.67
Gaza	Xai-Xai	21932	0.68
Gaza	Chokwe	17003	0.87
Maputo	Namaacha	5337	1.05
Inhambane	Mabote	7254	1.12
Inhambane	Govuro	5376	1.20
Gaza	Guija	12157	1.24
Gaza	Massangena	2770	1.41
Maputo	Magude	9708	1.42
Tete	Changara	46127	1.73
Maputo	Moamba	12712	2.10
Gaza	Chicualacuala	11801	2.43
Gaza	Massingir	9399	2.54
Gaza	Mabalane	14874	3.76

According to field visit information, many farmers report selling goats at relatively low prices, for example, south of Tete Province (Mutarara and Magoe districts), north of Manica Province (Tambara and Guro districts) and cattle districts of the southern region. Historically, farmers tend to sell goats and small ruminants during the hungry period: November to February.

Table 8 shows districts with a high livestock per household (between 0.5 to 3.8 animal per household) consists of 13 districts: Xai-Xai, Chokwe, Namaacha, Mabote, Govuro, Massangena, Guijá, Magude, Moamba, Chicualacuala, Changara, Massingir, and Mabalane. Except for Changara of Tete province, the districts of high concentration of animals are predominately from Gaza, Inhambane and Maputo. Table 9 presents districts with per capita cattle ranging from 0.2 to 0.45 per household.

High rate of livestock mortality has been reported for Inhambane, Gaza and Maputo Provinces due to the following reasons:

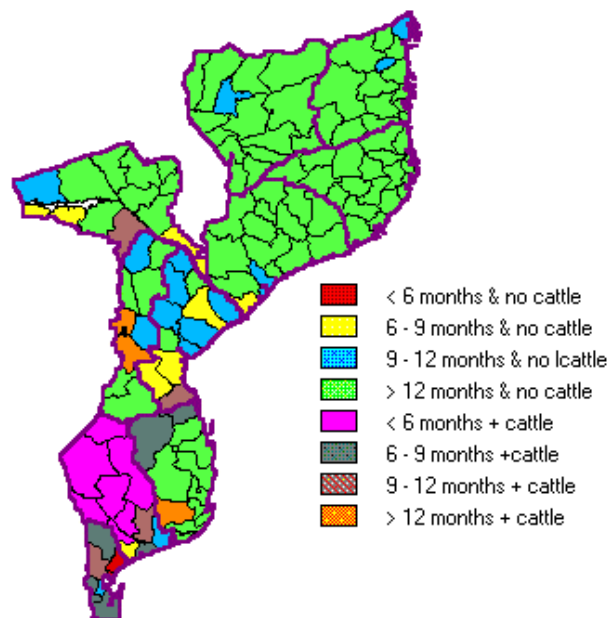
Table 9: Districts with Medium Concentration of Livestock

Provinces	Districts	Livestock	Per capita
Inhambane	Jangamo	3633	0.20
Tete	Maravia	3043	0.22
Inhambane	Inharrime	3587	0.22
Manica	Guro	2051	0.22
Tete	Angonia	15509	0.23
Nampula	Ilha de Mocim	1890	0.24
Tete	Chiuta	3518	0.26
Sofala	Buzi	6043	0.27
Gaza	Bilene	6002	0.27
Inhambane	Homoine	6070	0.28
Maputo	Manhica	6240	0.30
Tete	Magoe	2796	0.31
Tete	Moatize	8970	0.32
Maputo	Matola e Boa	3874	0.38
Gaza	Mandlakaze	11711	0.40
Inhambane	Fimbalouro	2370	0.40
Inhambane	Zavala	10373	0.41
Tete	Tsangano	12225	0.41
Manica	Barue	6014	0.43
Tete	Cahora Bassa	7075	0.45
Maputo	Marracuene	3048	0.47

<sup>4</sup> Note that there is a significant variation of livestock data between national and provincial/district

- a) An excessive wet season increases in water born diseases.
- b) Lack of veterinary service. Private companies run available veterinary services and clinics and very few small-scale farmers can afford these services. The government district veterinary services only include providing advisory service.
- c) Introduction animal breeds that have not adapted to local environment. High rates of mortality may result before full adaptation.

**Map5: Overlap of Food Deficit with High Cattle Concentration**



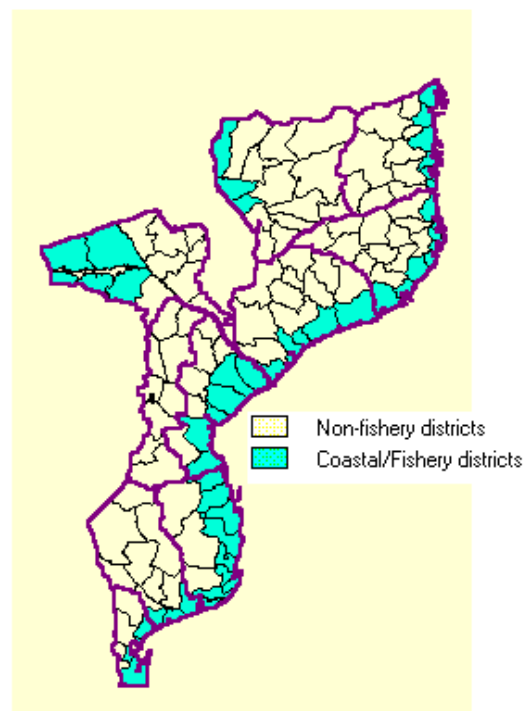
Livestock resource has the capacity to ameliorate for security conditions for population living in food deficit areas as the following map depicts. Map 5 shows districts where livestock has been providing a significant source of income. Data on the extent of income derived from livestock sector has not been available, thus measuring the contributions of the sector rather difficult. Nevertheless, there is growing evidence that there is increased livestock trade from the food deficit districts that suggests the vital role the sector plays in household food security. A field verification visit to Gaza suggests that goats are traded from the Central Provinces and northern districts of Gaza and Inhambane. Prices of goats are lower in these provinces compared to Maputo.

### Food Security Conditions of Coastal Districts

It is an established fact that coastal and lake districts of Mozambique have access to fish resource and this have been used effectively as important income and food security strategy. The extent to which fishery supports food security capacity of the population in the coastal/ lake districts is rather difficult to establish in accurate economic terms; however, population of the districts along the coasts are heavily dependent on fishing to the extent that crop production becomes a secondary economic activity.

As was noted in the 1997/98 VA report, absolute and relative roles of fish sector income to household income/ food security are hard to find.

**Map 6: Coastal/ Fishery Districts of Mozambique**



Map 6 shows coastal/ lake districts with potential for fishing. It should be noted that not all the populations in these districts have access to fishing opportunities due to their distance from the ocean or the lakes. It is assumed that it is only populations who actually reside along the coast (often within 10 to 15 km from the ocean) that may have access to fishing opportunities. This implies that not all population can ameliorate their food security condition as a result of fishing.

Fishing has been abundant resource in many districts of the coast, but for the current season it is noted that following floods in many districts, the stagnating water is used for fishing. Fishing has become an important form of accessing income for many households in flood affected districts. Fish catch contracts between exporters and local fishermen are growing in some districts of Inhambane and Tete province that provide a secure source of income to households especially during the critically hungry period -- November to February. Furthermore, there is limited fishing opportunity along major rivers and these are not included in the current analysis.

The following sections yet to be completed by the VA group

## **b. Coping Capacity of Poor Households**

1. Districts with high dependence on purchased food
2. Districts with high dependence on coping strategies
3. Districts highly dependent on agricultural income

## **5. Health and Nutrition Conditions**

Table 10 shows districts with significant nutritional problems. The following two categories are considered:

Districts with average insufficient growth rate of above 16% (alarm level). Averages are calculated from the monthly rates of the period of April 1998 to March 1999. Twenty one (21) districts are included in this category. Most of these districts have chronic mal-nutrition. Most of them are located in the north of the country (north of Zambezi river). The highest rate is registered in Mecula (Niassa province) with an extreme rate of >30% ( however, it should be noted that there are problems of data quality in this district) distrito.

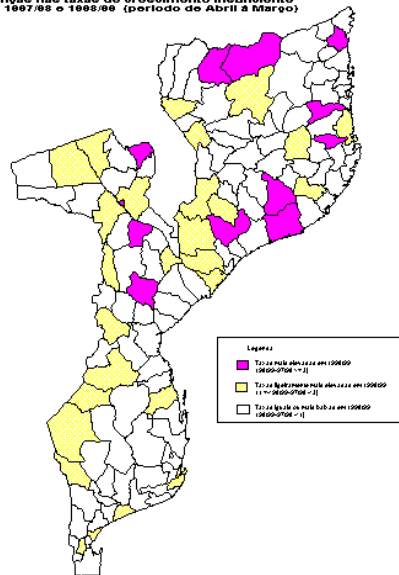
Districts with an increase of more than 3% in the rate of insufficient growth rate compared to the previous agricultural campaign ( average rates from April 97 to March 98 and April 98 to March 99) There 13 districts of which 5 are now in the category of alarm (\*), however it should be noted that although the insufficient growth rate is rising, the remaining 5 districts are within normal situation (\*\*). In particular the district of Pebane had a huge increase in the last year, when in previous years never registered high numbers.

TABLE 10: NUTRITIONAL STATUS OF SELECTED DISTRICTS (1998/99 SEASON)

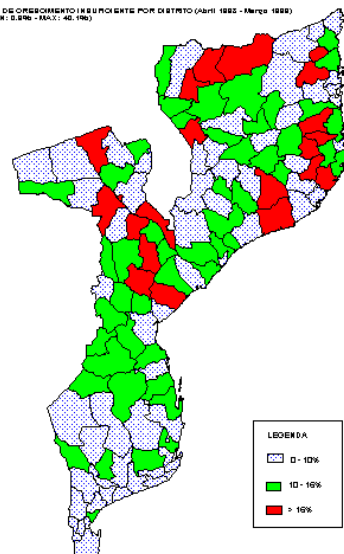
Province	District	% average CI > 16% Apr. 98 - Mar. 99	Increase of % CI > 3% 97/98 and 98/99
Niassa	Mecula	40.1	5.5
	Mavago	26.8	6.0
	Muembe	20.5	--
	Mandimba	18.6	--
Cabo Delgado	Meluco	17.7	--
	Muidumbe	17.2	--
	Ibo	--	4.6**
	Chiure	--	4.3**
	Mocimboa da Praia	--	3.4**
Nampula	Nacarroa	19.2	4.1*
	Namapa	17.9	--
	Meconta	17.2	--
	Mogincual	17.1	--
	Muecate	16.4	--
Zambezia	Pebane	21.3	17.1*
	Gile	20.1	9.8*
	Mocuba	--	4.2**
Tete	Changara	19.4	--
	Chifunde	18.2	--
	Mutarara	17.5	--
	Cidade de Tete	16.6	8.2*
	Angónia	--	3.1**
Sofala	Maringue	25.3	--

	Gorongosa	22.3	3.2
	Muanza	16.7	--
Manica	Tambara	16.6	5.5*

**Mudanças nas taxas de crescimento insuficiente entre 1987/88 e 1988/89 (período de Abril a Março)**



**TAXAS DE CRESCIMENTO INSUFICIENTE POR DISTRITO (Abril 1988 - Março 1989)**  
(M.R.: 0,9% - M.A.X.: 40,1%)

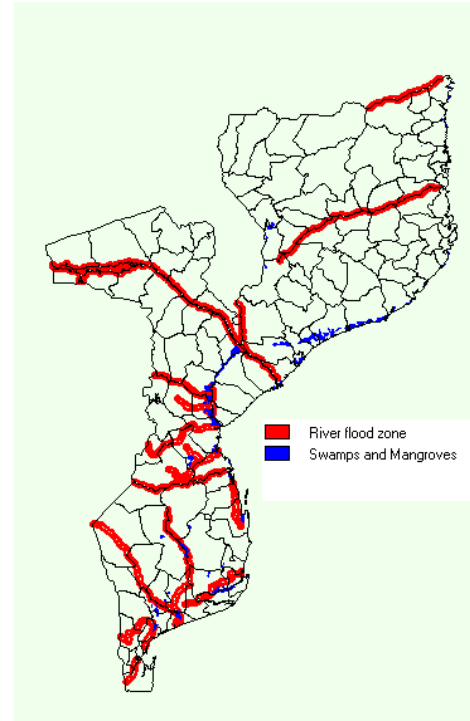


### III. Assessment of Future Risk: The Contingency Measure

Flood, in years of abundant rainfall, continues to represent an important determinant of food production along major river basins of Mozambique. As have been noted in the past years, Zambezi, Pungue, Buzi, Save, Govuro, Incomati, Shire, and Rovuma rivers induce significant crop and property damage. However, preparedness measures in these flood-prone areas are very limited or non-existent.

Flood risk can take a form of surface flood, riverbank flood and river basin (valley) flood. Surface flood is the most frequent risk occurrence associated with excess water (rains). With heavy rains surface flooding can occur almost everywhere and the risk of damage, mainly to cropland and soil erosion can be assessed in terms of duration of water standing in the field, growth stages of field crops, slope (elevation) of the area that may exacerbate soil losses to runoffs. In context of Mozambique surface flooding occurs often on farmlands leading to standing water in farm fields and resulting crop or productivity losses. In most cases, surface flood risk is individual and community absorbed risk. Riverbank flood occurs when river level rises, and often accommodated within the natural bank of the river. Economic impacts of such flooding are very limited or vary for each riverbank. River basin flood is the more significant risk in the country. River basin flood is explained by a large expanse of land that is exposed to river flood with each unit rise in the level of river over and above its normal course. Map 7 presents an updated of areas under the potential influence of river flood including swamps and mangroves.

Map 7: Flood Risk Zones, Swamps and Mangroves of Mozambique



For the period 1999/2000, it should be noted that the level of stagnant water in the districts of Inhassoro and Vilanculo is a cause for concern. A flood contingency plan should be introduced to minimise risk of damage for the next season. Details and contents of such a preparedness strategy should be worked out with communities and local authorities before the start of the next rain season. It should be noted that there is increased saturation of the water level in most places, particularly in Inhassoro whereby the stagnating water is already very high well before the start of rainy season.

## IV. Conclusions and Recommendations

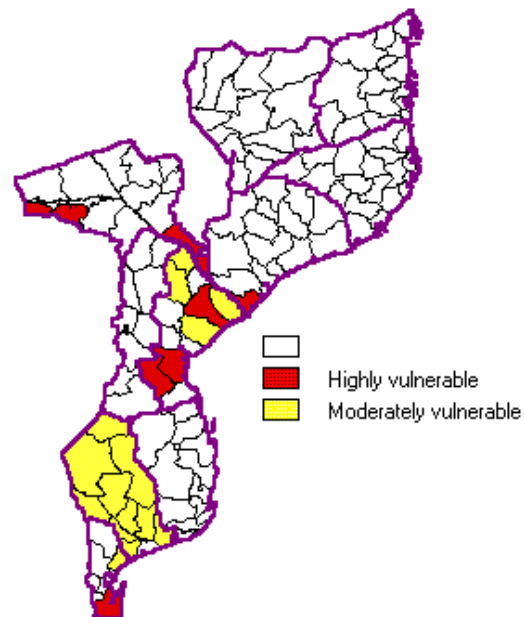
1. Mozambique has yet registered another bumper harvest from the 1998/99 season. This has meant that national and district food availability, in aggregate terms has improved for most part of the country. As a result of favourable rainfall and better forecasting method, many districts improved their food self-provisioning capacity for 1999/2000 market year. Accordingly, the number of districts with less than 6 month capacity for self-provisioning has decreased from twenty districts representing 15% of the total number of districts in 1997/98 to 16 districts (representing 12.40%) in 1998/99 to the current nine districts representing 7% of the total. Moreover, the second crop that is still not quantified has enjoyed an above normal harvest in most regions, where it is traditionally important, especially in most flood prone districts. The second crop, provides normally additional output of cereals and beans, and a variety of vegetables that do not grow in the main season.
2. Available information from local sources and field trip reports indicate that extreme vulnerability conditions that were reported for Chigubo in the last year resulted in more male household members looking for S. African employment. Although the government food and seeds support program was late, it produced positive impact on household's ability to resume normal life. Since farming is not important activity in this district, recovery may be mostly related to improvement in physical access to the nearest towns, for sale of wildlife and access to other sources of employment. Additionally some of these districts are within the area of wildlife concentration where a cross-border (trans-frontier) game park between Mozambique, S. Africa and Zimbabwe is being multi-laterally developed. Local development plan indicates that local communities will be involved in forest and wildlife management in a next stage of the game park development, an activity that will increase community earnings.
3. Livestock sector also enjoyed normal to above normal rainfall with adequate water and pasture availability. While some incidences of livestock mortality has been reported, overall, the livestock conditions reported to have remained normal and per family holdings have increased in the best livestock districts of the country during the last agricultural season. Moreover local authorities indicate that the volume of livestock sales has increased in the current year owing mainly to overall improvement of physical access between main deficit towns and surplus districts.
4. Some districts of central and southern region (see section 1a and 1 b) experienced surface and river flood damage during the season. The extent of crop and property losses varied within and between districts. Relief assistance has been provided for the districts affected by flood early in 1999. Food security condition of most of the flood affected districts has ameliorated through alternative coping strategies including intensified fishing and fish marketing, expansion of second season crop in some areas and income from sale of small ruminants in livestock-major districts.
5. In the Districts of Nacaroa, Pebane, Gilé, Chiúre velho, malnutrition is rising alarmingly from the previous marketing season. A variety of reasons may be associated and related, including water sanitation problems, outbreak of diseases, including malaria and cholera, deterioration



of work conditions and workload to women as a result of huge family labour reduction during the 1998/99 agricultural year, etc.

6. Major losses of output of cashew were observed in Manjacaze and Chibuto as a result massive disease infestation in the last agricultural season, which will have significant negative impact on cash earning as cashew is one of the most important cash crop of these districts.
7. Prices in some selected market suggest that prices during 1998/99 market year remained well above the previous year level.
8. A combined data on crop and livestock production together with fisheries and other forms of income provided the context for determining extent of vulnerability for 1999/2000 season. Accordingly, the following districts are categorised as highly vulnerable: Mecula, Búzi, Magoe, Mutarara, Chinde, Cheringoma, Matutuine and Chibabava, Tambara, Nacaroa, Pebane, Gilé. The following districts are categorised as moderately vulnerable: Massangena, Chicualacuala, Chigubo, Mabalane, Massingir, Guija, Bilene Macia, Manhiça, Chokwe, Inhassoro, Caia, Chemba, Maringue, Muanza, Marromeu, Chibuto and Mandlakazi, Macomia, Quissanga and Chiúre Velho. No district falls into the category of extremely vulnerable, for this season (see Map 8).

**Map 8: Vulnerable Districts: 1999/2000**



## Recommendations

- The chronic generalised shortage of tools, particularly in vulnerable districts could be addressed through specific short and medium term interventions that include food (or tools for work) for work activities. “Tools for work” program should be designed carefully, involving local authorities to meet appropriate specifications required in a given district.
- Districts where cholera and malaria epidemics had huge impact, will need support on a variety of activities, including agricultural activities (seed, tools, animals) and sanitary and health education, that should be targeted to most affected families. Specific education

programs for women and school children could be designed locally with the support of the provincial food security and nutrition committee.

- Seeds distribution to districts affected by epidemics, floods and wild animals, should be coordinated as much as possible at all levels and government structures should take the leadership within the framework of the food security committee, so that seed distribution will reflect the real needs and food security plans of local farmers.
- For flooded districts, a district based contingency plans should be produced to specifically address intra-district considerations and locally based solutions for:

## 1. Recommended Interventions

*This section is yet to be expanded upon and finalised with the VA group*

**Table 10 Problems, opportunities and possible interventions in districts highly and moderately vulnerable**

Names of districts affected	Possible interventions
<b>Highly Vulnerable districts</b>	Improve water management systems (micro-dams, small scale irrigation)
Buzi, Magoe, Mutarara, Chinde, Cheringoma, Matutuine, Chibabava, Mandlakazi, Mecula, Tambara, Nacaroa, Pebane	Promote livestock sector development including veterinary service provision;  Where possible, promote finishing in rivers/lakes including supply of improved fishnet;  Improve fish and livestock marketing outlet.
<b>Moderately vulnerable districts</b>	Improve access to markets through locally designed & managed programs (eg. Food fund rehabilitation and maintenance of roads and bridges),
Massangena, Chemba, Maringue, Manhiça, Chokwe, Guija, Chicualacuala, Chigubo, Mabalane, Bilene Macia, Massingir. Muanza, Marromeu, Chibuto, Mandlakazi, Inhassoro, Macomia, Quissanga and Chiúre Velho	Promote livestock sector development including veterinary service provision;  Where possible, promote finishing in rivers/lakes including supply of improved fishnet;  Improve fish and livestock marketing outlet. Intensify nutrition monitoring and education Targeted commercial seed and tools support to villages through provincial food security committee.

**Table 11: Individual explanation of highly vulnerable districts**

<b>Highly Vulnerable Districts - province</b>	<b>Common Causes &amp; Possible Explanations</b>	<b>Suggested Possible Interventions</b>
Chemba - Sofala		
Cheringoma – Sofala		
Chiúre – C. Delgado		
Chinde – Zambezia	Excessive rainfall	
Gilé - Zambezia		
Magoé – Tete	Excessive rainfall	
Mandlakazi – Gaza	Decline of cashew production caused by fungus	
Matutuine - Maputo		
Mecula – Niassa	Decline of harvest caused by wild animals	
Mutarara - Tete	Flooding in the best producing areas of the district.	
Nacaroa - Nampula	Sudden rise of mal-nutrition	
Pebane - Zambezia	Sudden rise of mal-nutrition	
Chibabava - Sofala		

**Table 12: Individual explanation of moderately vulnerable districts**

<b>Moderately Vulnerable Districts - Province</b>	<b>Common Causes &amp; Possible Explanations</b>	<b>Suggested Possible Interventions</b>
Búzi - Sofala		
Caia - Sofala		
Chicualacuala - Gaza		
Chigubo - Gaza		
Chibuto - Gaza		
Inhassoro - Inhambane		
Macomia – C. Delgado		
Manhiça - Maputo		
Maringue – Sofala		
Marromeu – Sofala		
Muanza – Sofala		
Quissanga – C. Delgado		

## **Annex 1: National Food Balance Sheet (1999/2000) Mozambique**

### **National Food Demand and Supply**

The food supply situation in the 1999/2000 marketing year will improve and stay above than the previous marketing year in all regions of the country, with especial reference to the northern and central regions. The northern and central regions will improve the total volume of food *per capita* stock available and surplus for trade compared to previous years. Total cereal deficit for the current marketing year will fall between 70,000 and 80,000 MT, which is only 40% of the deficit of previous marketing year of about 271,000 MT. Maize surplus is a total of 162,000 MT representing solely the surplus from the central and northern regions.

Final assessment of the current season through the national early warning system and confirmed by the multi-sector crop assessment mission indicate a total national production of cereals of about 1,800,000 MT that represent an increase of about 10% of the previous total national production of cereals. Although it is difficult to compare with the previous years, due to a recent methodological change, it is indicated that total production of cassava, groundnuts and beans will surpass record levels of the previous campaigns.

As usual, despite the high surplus from good previous agricultural campaign, there are no carry over reserves, except for few localised areas of the northern region. The main reason includes the increase of volumes of internal and external trade as the basic marketing conditions improve (main roads, policy improvements, etc); the other factor include the lack improved of conservation and storage technology in the small scale family sector, among others. Very few families have capacity to keep stocks beyond December, therefore as usual most farmers and local traders sell the produce prior to December/January, three months before the new harvest. Cereal import will be required to compensate for the total deficit of about 149,000 MT of wheat and 110,000 MT of rice.

As a result of continuous stability and five consecutive good agricultural campaigns, no emergency food aid will be required for the current marketing season. Except for unexpected situations of localised food gaps and (i.e. from the southern region) could be compensated through internal mechanisms based on re-distribution of internal surplus from the northern and central regions. However, as with the previous years, from November and December maize grain and maize meal may be formal or informally imported from S. Africa to compensate the consumption requirements in the southern regions when internal market price is less competitive. On the other hand, around an estimated 162.000 MT of maize from surplus regions will be available for export in the current marketing year.

Attached the food balance sheet from the Ministry of Commerce, Industry and Tourism, based on final data from the Ministry of Agriculture and Fishery.

TABLE 11: NATIONAL FOOD BALANCE SHEET

	Maize	Rice	Wheat	Sorghum/ Millet	Total Cereal	Cassava	Other tubers	Bean/ groundnut
A. Total Availability	1256	140	46	384	1826	5573	601	334
A.1. Opening Stocks	60	24	46	12	142	20	0	10
Monitored	10	15	41	0	66	0	0	0
Non-Monitored	50	9	5	12	76	20	0	10
A.2 Gross Production (1998/1999)	1196	116	0	372	1684	5553	601	324
B. Consumption Requirements	1095	250	195	374	1914	5253	580	317
Human consumption	920	236	195	320	1671	3587	459	271
Industrial Consumption/Feed	29	0	0	15	44	555	0	0
Seeds	27	9	0	9	45	0	0	19
Losses	119	6	0	30	155	1111	121	27
C. Deficit(-) Surplus(+) (A-B)	161	-110	-149	10	-87	320	21	16
D. Imports	60	150	175	0	385	0	20	16
Imports Received	0	0	0	0	0	0	0	10
Formal commercial	0	0	0	0	0	0	0	5
Informal commercial	0	0	0	0	0	0	0	5
Market food Aid	0	0	0	0	0	0	0	0
Emergency food aid	0	0	0	0	0	0	0	0
D.2 Imports (expected)	60	150	175	0	385	0	20	0
Formal commercial	50	140	150	0	340	0	10	0
Informal commercial	10	0	0	0	10	0	10	0
Market food Aid	0	10	25	0	35	0	0	0
Emergency food aid	0	0	0	0	0	0	0	0
E. Exports	150	0	0	0	150	0	0	20
Formal commercial	100	0	0	0	100	0	0	10
Informal commercial	50	0	0	0	50	0	0	10
F. Final Stocks (+)	71	40	26	10	148	320	41	6
Uncovered requirements (C+D-E)								



TABLE 12: CRITERIA FOR CLASSIFYING VULNERABLE DISTRICTS 1999/2000

CONTEXT					Risk Factors (High, Moderate, Low )			Market Access & Source of Income				Vulnerability
	District	Population	Production	Food System	Drought	Floods	Nutrition	Physical Access (Good, Poor, Very Poor)	Market Function (Good , Poor, Very Poor)	Remittances & opportunity of access to the labour market (High, Median, Low)	Livestock & Fisheries (Important, Moderate, Low)	Level of Vulnerability (Extreme, High, Moderate)
	Matutuine	37,874	8.8	River basin/ Coastal Lowlands / Semi-arid	Moderate	Moderate	Moderate	Poor	Poor	Medium	Moderate	High
	Manhiça	134,873	4.4	River basin/ Coastal lowlands	Moderate	High	Moderate	Good	Good	High	Moderate	Moderate
	Chigubo	13,493	3.2	Semi-arid	High	moderate	High	Very Poor	Very Poor	Medium	Moderate	Moderate
	Massangena	13,936	4.2	Semi-arid/River basin	Moderate	Moderate	Moderate	Very Poor	Very Poor	Medium	Moderate	Moderate
	Chicualacuala	34,581	3.3	Semi-arid/River basin	High	Moderate	High	Poor	Poor	Medium	Intense	Moderate
	Guijá	58,689	4.2	Semi-arid/River basin	Moderate	Moderate	High	Poor	Poor	Medium	Moderate	Moderate
	Chokwe	117,930	3.1	River basin/ Semi-arid	Moderate	Moderate	Low	Good	Good	Medium	Moderate	Moderate
	Mabalane	26,233	4.1	Semi-arid/River basin	High	High	Moderate	Poor	Poor	Medium	Moderate	Moderate
	Bilene Macia	129,024	6.7	Coastal	moderate	moderate						Moderate
	Massingir	22,943	5.6	River basin	high	moderate						Moderate
	Manjacaze	170,984	10.9	Coastal & semi-arid	moderate	moderate						Moderate
	Chibuto	156,264	12.0	Semi-arid	moderate	moderate						Moderate
	Marromeu	76,379	10.5	River basin	moderate	high						Moderate
	Chemba	52,940	11.4	River basin/ Semi-arid	Moderate	High	High	Very Poor	Poor	Low	Moderate	Moderate
	Muanza	16,125	10.0	Coastal Lowlands	Moderate	high	High	Poor	Poor	Low	Low	Moderate
	Maringue	62,350	11.0	Planalto interior	Moderate	Low	High	Very Poor	Poor	Low	SI	Moderate
	Cheringoma	21,676	7.3	Coastal Lowlands/ Planalto midland	Moderate	Low	High	Poor	Poor	Low	Low	High
	Chibabava	77,378	8.6	Planalto midland/ Semi-arid	Moderate		High	Poor	Poor	Low	Moderate	High
	Buzi	151,999	8.3	Coastal/ river basin	moderate	high						High
Tete	Mutarara	143,844	6.5	Semi-arid/ River basin	Moderate	High	High	Poor	Poor	Medium	Intense	High
Tete	Magoé	40,865	8.9	River basin	moderate	moderate						High
Zambézia	Chinde	174,780	8.0	Coastal Lowlands	Low	High	SI	Very Poor	Very Poor	Low	Moderate	High